

What is claimed is:

CLAIMS

- 1 1. A system comprising:
2 a plurality of network resources adapted to process one or more block-based pro-
3 tocols; and
4 one or more vfilers each comprising a logical partitioning of the network re-
5 sources to establish an instance of a multi-protocol server configured to service data ac-
6 cess requests in response to the block-based protocols.
- 1 2. The system of claim 1 wherein the network resources comprise network interfaces
2 assigned to one or more network address resources.
- 1 3. The system of claim 1 further comprising storage media configured to store in-
2 formation as units of storage resources, the units of storage resources allocated among
3 each of the vfilers.
- 1 4. The system of claim 3 wherein the units of storage resources comprise volumes.
- 1 5. The system of claim 3 wherein the units of storage resources comprise qtrees.
- 1 6. The system of claim 3 further comprising an operating system having a file sys-
2 tem resource adapted to perform a boundary check to verify that a request is allowed to
3 access certain units of the storage resources on the storage media, each vfiler allowed
4 shared access to the file system and further adapted to create virtual disks within the units
5 of storage resources and wherein each of the virtual disks associated with one or more of
6 the vfilers.

1 7. The system of claim 6 wherein the operating system further comprises a user in-
2 terface having a command set adapted to operate on virtual disks, and wherein the com-
3 mand set executes within a context of a vfiler.

1 8. The system of claim 7 wherein the user interfaces comprises a command line in-
2 terface (CLI) adapted to support the command set.

1 9. The system of claim 8 wherein the CLI comprises a lun command adapted to per-
2 form operations to a virtual disk associated with the context of the vfiler.

1 10. The system of claim 9 wherein the lun command creates a logical unit number on
2 a file system associated with the server, the logical unit number being associated with the
3 context of the vfiler.

1 11. The system of claim 8 wherein the CLI comprises an igroup command that gener-
2 ates a set of file system primitive for binding an initiator group to one or more initiator
3 addresses and wherein the initiator group is associated with the context of the virtual
4 server.

1 12. The system of claim 1 wherein the block-based protocol comprises iSCSI.

1 13. The system of claim 1 wherein the block-based protocol comprises FCP.

1 14. The system of claim 1 further comprising a context data structure provided to
2 each vfiler, a context data structure including information pertaining to a security domain
3 of a vfiler and enforces controlled access to the allocated and shared resources.

1 15. The system of claim 1 wherein the multi-protocol server is further adapted to pro-
2 cess data access requests in response to one or more file-level protocols.

- 1 16. A method for implementing a vfiler, the method comprising the steps of:
2 adapting a plurality of network resources to process one or more block-based
3 protocols; and
4 partitioning the network resources to establish one or more vfilers each compris-
5 ing an instance of a multi-protocol server configured to service data access requests in
6 response to the block-based protocols.
- 1 17. The method of claim 16 further comprising the step of configuring storage media
2 to store information as units of storage resources, the units of storage resources allocated
3 among each of the vfilers.
- 1 18. The method of claim 17 wherein the units of storage resources comprise volumes.
- 1 19. The method of claim 17 wherein the units of storage resources comprises qtrees.
- 1 20. A computer readable medium containing executable program instructions for im-
2 plementing a vfiler, the executable program instructions comprising program instructions
3 for:
4 adapting a plurality of network resources to process one or more block-based
5 protocols; and
6 partitioning the network resources to establish one or more vfilers each compris-
7 ing an instance of a multi-protocol server configured to service data access requests in
8 response to the block-based protocols.
- 1 21. A method for migrating a vfiler from a first physical server to a second physical
2 server, the method comprising the steps of:
3 initiating mirroring of data from the first physical server to the second physical
4 server;
5 unexporting luns associated with the vfiler on the first physical server;

6 destroying the vfiler on the first physical server;
7 creating the vfiler on the second physical server;
8 copying metadata from a hidden directory to a root directory of the vfiler;
9 and
10 exporting luns associated with the vfiler on the second physical server.

1 22. The method of claim 21 wherein the step of destroying the vfiler on the first
2 physical server comprises the step of deleting a vfiler context data structure.

1 23. The method of claim 21 wherein the hidden directory comprises a directory
2 within the root directory of the vfiler.